

AMENDMENTS

The Version with Markings to Show changes made is found at pages 6-7, after Applicant's remarks.

In the Specification:

At page 1, please delete lines 3 and 4 in their entirety, and insert therefor:

C1 This application is a continuation-in-part of U.S. Patent Application Serial No. 09/234,332, filed on January 20, 1999, which issued as U.S. Patent No. 6,087,168 on July 11, 2000.

In the claims:

Please amend Claims 1, 41, and 42, as follows:

Sub D 1. (Amended) A method of transdifferentiating an epidermal basal cell into a cell having one or more morphological, physiological and/or immunological feature(s) of a neural progenitor, neuronal, or glial cell, comprising:

(a) culturing a proliferating epidermal basal cell population comprising one or more epidermal basal cell(s), said cell(s) derived from the skin of a mammalian subject;

(b) exposing the cell(s) to an amount of an antagonist of bone morphogenetic protein (BMP) effective to antagonize endogenous BMP signal transduction activity; and

C2 (c) growing the cell(s) in the presence of at least one antisense oligonucleotide comprising a segment of a human MSX1 gene and/or a segment of a human HES1 gene, or homologous non-human counterpart of either of these, in an amount effective to suppress the expression of functional gene product of MSX1 and/or HES1, whereby the cell is transdifferentiated into a cell having one or more morphological, physiological and/or immunological feature(s) of a neural progenitor, neuronal, or glial cell.

41. (Amended) A method of using cells transdifferentiated from epidermal basal cells to identify a potential chemotherapeutic agent comprising:

- (a) transdifferentiating a population of epidermal basal cells into neuronal progenitor, neuronal, or glial cells by the method of Claim 1;
- (b) culturing the transdifferentiated cells;
- (c) exposing the cultured cells, in vitro, to a potential chemotherapeutic agent;

and

- (d) detecting the presence or absence of an effect of the potential chemotherapeutic agent on the survival of the cells or on a morphological or electrophysiological characteristic and/or molecular biological property of said cells, whereby the presence of an effect altering cell survival, a morphological or electrophysiological characteristic and/or a molecular biological property of the cells indicates the activity of the chemotherapeutic agent.

42. (Amended) A method of using transdifferentiated cells to screen a potential chemotherapeutic agent to treat a nervous system disorder of genetic origin, comprising:

- (a) transdifferentiating epidermal basal cells derived from a human subject having a genetically-based nervous system disorder to a population of neuronal cells by the method of Claim 1;
- (b) culturing the transdifferentiated cells;
- (c) exposing the cells, in vitro, to a potential chemotherapeutic agent; and
- (d) detecting the presence or absence of an effect of the potential chemotherapeutic agent on the survival of the cells or on a morphological or electrophysiological characteristic and/or molecular biological property of said cells, whereby the presence of an effect altering cell survival, a morphological or electrophysiological characteristic and/or a molecular biological property of the cells indicates the activity of the chemotherapeutic agent.